DuROCK DEFS

Direct-Applied Exterior Finish System

MANUFACTURER'S SPECIFICATION 09 25 15

Part 1 – GENERAL

1.1 RELATED SECTIONS

.1 Specification 03 30 00 – Cast-in-Place Concrete
.2 Specification 04 20 00 – Unit Masonry
.3 Specification 05 40 00 – Cold-Formed Metal Framing
.4 Specification 06 10 00 – Rough Carpentry
.5 Specification 07 27 00 – Air Barriers
.6 Specification 07 60 00 – Flashing & Sheet Metal
.7 Specification 07 90 00 – Joint Protection (Sealants)

1.2 SYSTEM DESCRIPTION

.1 DuROCK DEFS is intended for use on ventilated, steel frame, soffit and canopy assemblies that enclose unheated space. DuROCK DEFS may be used on similar wood frame assemblies providing there is wood sheathing separating the DEFS substrate from the framing. DuROCK DEFS may also be used over concrete.

SPEC NOTE	*1. Code compliance – the suitability of this system is subject to approval according to Municipal requirements. Check with all authorities having jurisdiction.*

1.3 DESIGN REQUIREMENTS

.1 Building Substrates (shall be engineered by others where required):
  .1 Substrate supporting DuROCK DEFS must be structurally sound and continuously supported. All substrates shall be;
    a. Continuous, flat and plumb, with surface variations less than 2 mm/m (¼ inch per 10 ft).
    b. Designed to deflect not more than L/360 when DuROCK DEFS is installed over framed walls.

SPEC NOTE	*2. The deflection ratio of L/360 is the ratio by which a wall may be designed to move, e.g., if a wall is 3 m high, it may deflect up to 3/360 = 8.3 mm.*

    c. Clean, dry, and free of any deleterious material that would affect the attachment of the DuROCK DEFS, such as wax, oil, paint, dust and dirt.
  .2 Sheathing boards shall be attached with corrosion resistant screws, spaced not greater than 200 mm (8 inches) apart, and supported by engineered light gauge steel stud framing. Sheathing joints must not exceed 3.2 mm ($^{1}/_{8}$ inch). Sheathing shall be minimum 12.7 mm (½ inch) thick, and sheathing shall be one of the following;
    a. Cement board, compliant with ASTM C 1325 or ANSI A118.9, installed with the rough side out, and fastened with countersunk screws.
    b. Glass-fibre-faced gypsum sheathing, compliant with ASTM C 1177, installed with the fibre-faced side out, fastened with screws driven flush (not countersunk). This sheathing is only suitable for areas that are not exposed to precipitation, such as soffits and enclosed walls.
  .3 All sheathing boards must be continuously supported by framing, and;
    a. Joints shall not occur at the corners of through-wall penetrations.
    b. Boards shall be installed horizontally with vertical joints offset, at least one stud.
  .4 Mass wall substrates include:
    a. Cast-in-place concrete, prefabricated concrete, or concrete masonry units.
    b. Concrete shall be free of form release agents, paint, efflorescence, and cracks.
    c. Concrete must be cured at least 28 days.
.2 Terminations and Expansion Joints

.1 DuROCK DEFS must terminate at least:
  a. 200 mm (8 inches) above finished grade.
  b. 50 mm (2 inches) above roofing systems.

SPEC NOTE	
	3. The Designer may devise the termination of DuROCK DEFS at hard surface grades within 200 mm provided that proper drainage and maintenance are provided as part of the design requirements.

.2 Expansion and termination joints shall have an elastomeric sealant, as specified in section 07 90 00, with a closed-cell foam backer rod.

.3 Sealant joints shall be installed as required in either Subsection 5.6.2 or 9.27.4 of the model building code.

.4 Expansion joints shall be designed by others, and are required at the following locations;
  a. Where expansion joints in the substrate occur, including building expansion joints and where significant structural movement may be expected to occur.
  b. At the abutment of dissimilar substrates.
  c. At deflection tracks in steel framed construction.
  d. At floor lines in wood framed construction.
  e. At changes in roof lines, building shape, or structural system.

SPEC NOTES	
	4. Location and size of expansion joints are the responsibility of the designer. Joint width should be designed to be four times greater than the anticipated range of joint movement.
	5. DuROCK recommends that expansion joints be at least 12.7 mm (½ inch) wide, and termination joints should be at least 9.5 mm ($^3/_8$ inch) wide.
	6. The termination of DuROCK DEFS at soffits may require a drained joint between the exposed façade and the soffit. If not, then a drip edge should be provided.

.3 Sheathing and Transition Membrane:
  .1 Sheathing membrane must conform to Subsection 9.23.17 in the model building code.

.4 Decorative Elements:
  .1 Mouldings, shapes, trim, and window sills where the DuROCK DEFS may be exposed are to be designed with a slope on all upward facing horizontal projections, sloped not less than:
    a. 6:12, rise over run for slopes up to 305 mm (12 inches) wide, or
    b. 3:12, rise over run for slopes up to 102 mm (4 inches) wide.

SPEC NOTE	
	7. Horizontal projections that do not conform to the above would be acceptable for wall areas that are partially enclosed, such as where a soffit extends out above such projections. Otherwise, metal flashing with a drip edge is recommended.

  .2 Horizontal projections shall be designed, consistent with governing codes and standards, such that these will not be configured or construed as roofing or loadbearing (pedestrian or otherwise).

.5 Flashing:
  .1 Corrosion resistant flashing must be installed according to the requirements of section 07 60 00 in general conformance with Part 5 or Subsection 9.27.3 in the model building code.
  .2 Flashing must be designed and installed by others, sloping outward with drip edges to direct precipitation to the exterior, and must be provided at the top of parapet walls and other similar points of termination.

1.4 PERFORMANCE REQUIREMENTS

.1 DuROCK Base Coat tested according to UEAtc Article 3.3.1.1 – pass two hours impermeability to water, UEAtc Article 3.3.1.2 – maximum water absorption 20% of dry weight, and ASTM D1623C – bond strength exceeds 0.1 MPa.

.2 Reinforcing Mesh tested according to ASTM D 5034 – minimum 10mm mesh size, minimum 35 N/mm breaking strength, and minimum 15N/mm residual strength after soaking in alkaline solution for 28 days, pH 12.5.

.3 DuROCK Finish Coat tested according to:
  .1 MIL.STD.810E – surpass 28 day mildew and fungus resistance
  .2 ASTM B117 – surpass 300 hour salt spray resistance
  .3 ASTM D822B – surpass 2500 hour accelerated weathering, and
  .4 ASTM D1623C – bond strength exceeds 0.1 MPa.

SPEC NOTE	
	8. Wind load resistance of DuROCK DEFS is achieved via attachment to the substrate, hence, the substrate must be designed withstand the anticipated wind loads.

1.5 SUBMITTALS

.1 Upon request, DuROCK will supply finish coat samples, approximately 200 x 200 mm (8 x 8 inches), providing representation of the texture and colour.

1.6 QUALITY ASSURANCE

.1 DuROCK DEFS shall be installed by a competent, knowledgeable, experienced contractor.
.2 DuROCK DEFS shall be installed in accordance with these specifications and the corresponding details.

1.7 DELIVERY, STORAGE & HANDLING

.1 All materials and components shall be:
  .1 Supplied by DuROCK Alfacing International Limited or its appointed distributors in the original, unopened packaging with labels clearly identifying each component.
  .2 Inspected upon delivery, and any defective materials and/or components are not to be used.
  .3 Stored off the ground, under protective cover, away from direct sunlight and kept dry.
.2 All water-based materials, supplied in plastic pails, are to be kept above 4°C (40°F) and below 40°C (104°F).
.3 All dry-bagged materials shall be kept dry and protected from high humidity and moisture.

1.8 SITE CONDITIONS

.1 Surface and ambient conditions for application of wet-state-materials must be kept above 4°C (40°F).
.2 Finish coats applied in high humidity conditions will take longer than 24 hours to dry. If such conditions occur, provide supplemental heat to reduce the humidity, or provide protection long enough for finish coats to dry completely.
.3 Wet-state-materials shall not be applied in direct sunlight in temperatures exceeding 30°C (86°F) without protective cover.
.4 All work shall be protected from rain, snow, hail, and wind exceeding 25 km/hr (15 mph) for not less than 24 hours after wet material application.
.5 Do not apply materials in weather conditions that will cause adverse affects to performance.

1.9 WARRANTY

.1 DuROCK DEFS is eligible for a limited manufacturer's warranty starting from the date of substantial completion. The [Owner] [Contractor] [Designer] must make a formal application at the end of the project to receive such a warranty.
.2 DuROCK's warranty is effective when materials are paid for in full, and the workmanship complies with this specification.

Part 2 – MATERIALS

2.1 GENERAL

.1 DuROCK Alfacing International Limited, or its appointed distributors, shall supply all the materials and components for the DuROCK DEFS.
.2 Substitution of materials or components shall void the manufacturer's warranty.

2.2 MATERIALS

.1 Base Coats:
  .1 DuROCK Prep Coat Plus – a water-based, acrylic dispersion that is field-mixed with Type 10, 20, or 30 Portland Cement, used to pre-coat board joints.
  .2 DuROCK Prep Coat NCP – a non-cementitious, water-based, factory-mixed acrylic dispersion, used to pre-coat board joints.
  .3 DuROCK Cement Bear – a water-based acrylic dispersion that is field mixed with Type 10, 20, or 30 Portland cement, mixed together 1:1 by weight, applied with stainless steel trowel or spray equipment.
  .4 DuROCK Prep Coat – a water-based acrylic dispersion that is field mixed with Type 10, 20, or 30 Portland cement, used as a base coat.
  .5 DuROCK Prep Coat D – a polymer-based, dry mix material that is field mixed with potable water, used as a base coat.
.2 DuROCK Fibre Mesh – alkali resistant glass fibre reinforcing:

.1 DuROCK Fibre Mesh 4.5 – nominal 153 g/m^2 (4.5 oz/yd^2) weight, supplied in 965 mm (38 inches) wide by 45.7 m (150 feet) long rolls. The DuROCK logo appears on the mesh.
.2 DuROCK Fibre Mesh Tape – self-adhering nominal 88 g/m^2 (2.6 oz/yd^2) weight, supplied in 76 mm (3 inches) wide by 45.7 m (150 feet) long rolls.

.3 Primers & Paint:
.1 DuROCK Base Primer – water-based, color-pigmented acrylic dispersion used as a primer for DuROCK Finishes, applied by roller or brush.
.2 DuROCK Roll-On – water-based, color-pigmented acrylic coating with a fine sand texture, used as a finish coat on decorative trim and mouldings, applied by roller or brush.

.4 Finish Coats:
.1 DuROCK Finishes – water-based, color-pigmented acrylic finish with integral texture, applied by trowel or spray. Refer to the DuROCK Finishes data sheet for the selection of colour and texture.
.2 DuROCK Plus Finishes – water-based, color-pigmented, elastomeric acrylic finish with integral texture, applied by trowel or spray. Refer to the DuROCK Finishes data sheet for the selection of colour and texture.
.3 DuROCK Specialty Finishes – water-based, exposed colored aggregate finishes with integral texture, applied by trowel or spray. Refer to the data sheet for further information.

2.3 MIXING

.1 All DuROCK water-based products require mixing with a medium duty power-drill (400 – 500 RPM) and stainless steel or corrosion resistant paddle-mixing-blade.

.2 DuROCK water-based pail-packaged products to be mixed with Portland cement are required to be mixed to a uniform consistency prior to mixing with Portland cement.
.1 Prep Coat Plus– Gradually add 10 kg (22 lbs) of Type 10, 20, or 30 Portland Cement to one-half pail of Prep Coat Plus mixing continuously until a workable consistency is attained. Let the mixture stand for approximately 5 minutes, then mix again to temper the mix and increase the pot life, adding up to 250 mL (8 oz) of potable water if required to adjust viscosity.
.2 Cement Bear – Gradually add 13.5 kg (30 lbs) of Type 10, 20, or 30 Portland Cement to one-half pail of Prep Coat mixing continuously until a workable consistency is attained. Let the mixture stand for approximately 5 minutes, then mix again to temper the mix and increase the pot life.
.3 Prep Coat – Gradually add 15 kg (33 lbs) of Type 10, 20, or 30 Portland Cement to one-half pail of Prep Coat mixing continuously until a workable consistency is attained. Let the mixture stand for approximately 5 minutes, then mix again to temper the mix and increase the pot life, adding up to 250 mL (8 oz) of potable water if required to adjust viscosity.

.3 DuROCK dry-based products are to be mixed with potable water in the specified ratio for the product, until a workable consistency is attained. The mixture is to let stand for approximately 5 minutes, then mix again to temper the consistency and increase the pot life, adding up to 250 mL (8 oz) of potable water, if required to adjust viscosity.
.1 Prep Coat D – One bag to 6 L (1.3 imp gal) of potable water.

.4 DuROCK non-cementitious water-based pail-packaged factory-mixed products are required to be mixed to a uniform consistency prior to application.
.1 Up to 250 mL (8 oz) of potable water may be added to DuROCK Prep Coat NCP or DuROCK Finishes, when being applied in hot weather, however, water shall not be added to heavily pigmented finishes, i.e., dark colours.
.2 Water is not to be added during the mixing of DuROCK Base Primer, DuROCK Roll-On, DuROCK Plus Finishes, or DuROCK Specialty Finishes.

.5 Discard any material that has become stiff or hard.

Part 3 – EXECUTION

3.1 GENERAL

.1 Prior to commencing the work, review the substrate and report any deficiencies to the appropriate authority. Coordinate work with other trades.

.2 Install DuROCK DEFS following the general principles summarized in ASTM C 1516.

.3 Apply masking and temporary protection to ensure the work of this section does not result in the products staining other components of the building assembly.

.4 Maintain a minimum ambient and surface temperatures above 4^{o}C (40^{o}F) for at least 24 hours after each application of wet-state material.

3.2 BASE COAT & FIBRE MESH

.1 DuROCK Fibre Mesh Tape is to be applied over all sheathing board joints.

.2 All sheathing board joints are to be coated with DuROCK Prep Coat Plus, Prep Coat NCP, or Cement Bear prior to base coat application.

.3 Base coat shall be applied to the sheathing board as delineated in the architectural drawings.

.1 Fibre mesh shall be embedded into the wet base coat with a minimum wet thickness of 2 mm ($^{1}/_{12}$ inch) and the surface shall be rendered uniformly and smooth.

.2 Horizontal and vertical overlapping of the fibre mesh must be at least 65 mm (2½ inches).

.3 At interior and exterior corners, the fibre mesh shall be doubled up, overlapping at least 100 mm (4 inches) onto each side of the corner.

.4 For masonry substrates only, additional base coat shall be applied until the minimum dry thickness is 4.8 mm (3/16 inch).

.5 The base coat shall be cured at least 24 hours between coats, as well as before primer and finish are applied.

SPEC NOTE	*9. Although recommended, it is not necessary to reinforce the base coat with fibre mesh when applying DuROCK DEFS to mass wall substrates.*

3.3 PRIMER & FINISH COAT

.1 Where specified, DuROCK Base Primer shall be applied to the reinforced base coat with a roller, brush or spray equipment. Primer must dry at least 4 to 6 hours prior to finish coat application.

SPEC NOTE	*10. DuROCK recommends the application of primer prior to the finish to enhance the color consistency and durability of the system. DuROCK also recommends application of primer for all dark colored finishes, or applications in hot weather conditions. The Designer must specify if primer is required.*

.2 Apply DuROCK Finish Coat in accordance with the recommendations for the specific texture (refer to the appropriate DuROCK product data sheet). Render and float the DuROCK Finish Coat to match the approved color and texture approved by the owner or designer.

.1 Protect DuROCK Finish until it is fully dried, and for at least 24 hours after application.

.3 Clean Up:

.1 Remove masking and temporary protection as required.

.2 Ensure work of other trades is not adversely affected by the work of this section.

.3 Remove all leftover materials and garbage from the jobsite.

End of Specification 09 25 15